dPMR™ MODE 3 EXTERNAL CONTROLLER

IC-FC5000E

iDAS™
ICOM DIGITAL ADVANCED SYSTEM

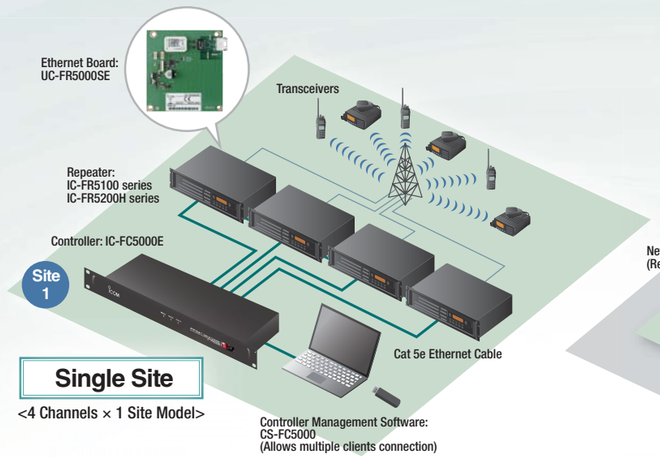
dPMR™

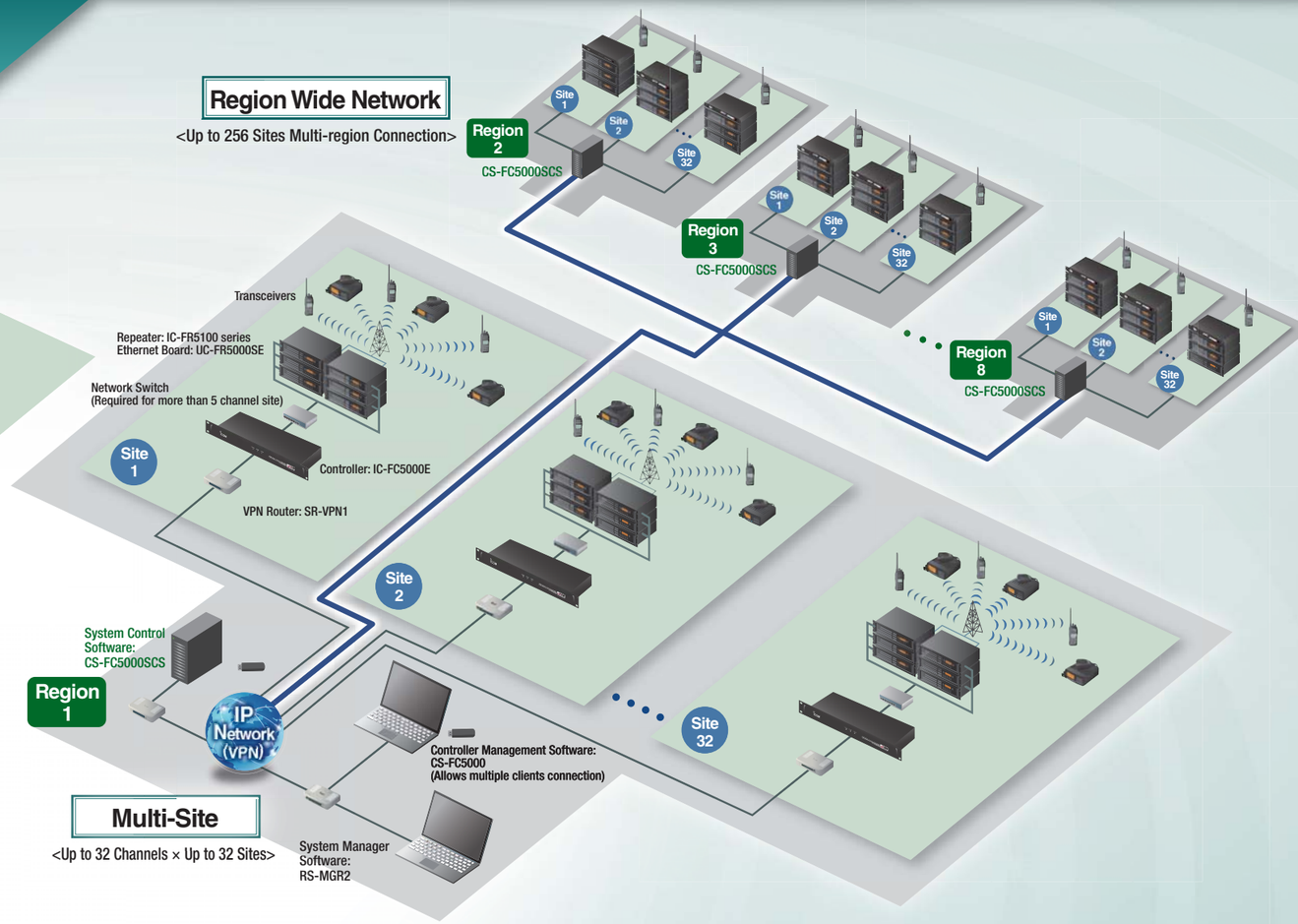
6.25 kHz FDMA
True RF Efficiency

TOTAL dPMR™ MODE 3 TRUNKING SOLUTION

dPMR™ Mode 3

dPMR is a 6.25 kHz FDMA based digital radio protocol described in the ETSI technical standards TS 102 658.
It offers 6.25kHz spectrum efficiency, higher security and greater audio clarity even on the fringes of the communication range.
In a dPMR Mode 3 digital trunking system, when a user requests a call through a dedicated control channel, the trunking controller automatically allocates one of the traffic channels and sets up the call, to accommodate a large number of users on a limited number of repeater channels.
The CS-FC5000SCS System Control Software can interconnect multiple trunking controllers over an IP network, so the system can be expanded from a single site system to multiple sites or region wide network to increase coverage.





System Features

- Up to 32 Channels per Site
  One Control Channel, Up to 31 Traffic Channels
- Up to 32 Sites Multi-site Trunking
  with CS-FC5000SCS System Control Software
- Up to 256 Sites Multi-region Connection
  (8 Region × 32 Sites for example)
- Dedicated Control Channel
- Efficient Spectrum Usage
- Channel License System
- Automatic Roaming from Site to Site
- Subscriber Registration

dPMR™ Mode 3 External Controller

IC-FC5000E

Centralized Control Channel Trunking

The IC-FC5000E dPMR Mode 3 trunking system uses a centralized control channel system. The control channel is independent of the traffic channels and continuously transmits a control signal. The system allocates a traffic channel for the whole duration of a call and can provide quick response during a series of calls.The dPMR Mode 3 trunking system is suited to controlling a large number of users in systems with congested traffic channels.

Up to 32 Channels in a Site

The IC-FC5000E controls up to 32 channels of connected repeaters over an IP network. (One control channel and up to 31 traffic channels.) The IC-FC5000E can be configured with the CS-FC5000 Controller Management Software via a web browser through an IP network.

Up to 32 Sites Multi-site Trunking

When used with the CS-FC5000SCS, System Control Software, up to 32 trunking controllers can be connected over an IP network for linking multiple sites. A radio can communicate with other radios registered to the interlinked trunked sites for multi-site roaming and calling service.

Up to 256 Sites Multi-region Connection

A region is comprised of up to 32 repeater sites controlled under the CS-FC5000SCS. The CS-FC5000SCS can be interconnected and provides multi-region connnection for region wide network virtually across the country.

Call Queuing and Pre-emptive Emergency

If all traffic channels are busy, the user's call request is automatically stored in the call queuing until a traffic channel is available. The emergency call can give priority level to a normal call in the call queuing, and the emergency call can force another normal priority call to be cleared down.

Channel License System

A four channel license activation key is supplied with the IC-FC5000E controller for a single site system. When increasing repeater channels or deploying multi-site or multi-region system, additional channel license activation keys are required for each repeater channel.

CS-FC5000 Controller Management Software

- Configures the system settings including repeater channels, fleet settings and various system options
- Firmware update and remote reboot over an IP network
- Web based software allows connecting of multiple clients (up to 20 accounts)
- Supports localized language for system labels
- Save and load the system setting file for the system backup
- Exports SCF (System Configuration File) for programming terminal radios

Other Features

- Optional RS-MGR2 System Manager software maintains the traffic and system logs to assist in system administration
- A traffic channel can be configured as a secondary control channel
- Telephone interconnect (Planned)

IC-FC5000E

SPECIFICATIONS

Operating temperature range	0°C to +40°C
Power supply voltage	12 V DC
Current drain (approximate)	600 mA
Dimensions (W×H×D)	483 × 44 × 219 mm (1U height)
Weight	2.25 kg
LAN	RJ-45 connector × 4 (100BASE-TX)
WAN	RJ-45 connector × 1 (100BASE-TX)
LED	Power, Error, Status
Conformity Standards	ETSI TS 102 658

REAR PANEL VIEW

COMPATIBLE MODELS

	VHF (136—174 MHz)	UHF (400—470 MHz)
Transceivers	IC-F3400DPT/DPS/DP IC-F3262DT/DS IC-F3162DT/DS IC-F5400DP/DPS IC-F5062D IC-F5061D	IC-F4400DPT/DPS/DP IC-F4262DT/DS IC-F4162DT/DS IC-F6400DP/DPS IC-F6062D IC-F6061D
	dPMR Mode 3 compatible transceivers (versions) are required.	
Repeaters	IC-FR5100/FR5100H IC-FR5000 IC-FR5200H UR-FR5100 UR-FR5000	IC-FR6100/FR6100H IC-FR6000 IC-FR6200H UR-FR6100 UR-FR6000
	dPMR digital repeaters (versions) are required.	
Ethernet Board	UC-FR5000SE is required for each repeater. * UC-FR5000SE is already installed to IC-FR5200H or IC-FR6200H.	
VPN Router	SR-VPN1 is the best match VPN router for the IC-FC5000E trunking system.	
SYSTEM MANAGER	The RS-MGR2 monitors the hardware status and network connectivity/statistics and collects the communication and traffic logs.	

dPMR MODE 3 FEATURES AND SERVICES

Individual Call	Radio to Radio calls
Group Call	Group call to a preprogrammed talk group
Broadcast Call	One-way voice call to a preprogrammed talk group
All Call	Radio to all users calls
Gateway Call* (*External gateway device required)	Connect with line connected destinations. (Telephone or SIP phones) to expand the radio communication.
Short Data Message (SDM)	A data service that supports a variety of standard formats – Binary Code, Text (up to 100 characters), GPS.
Status Call	32 preprogrammed status messages can be sent and received.
Transparent Data Call	This function uses a dPMR radio as a data modem allowing data communication on a 6.25kHz channel such as for a remote telemetry system or data application.
GPS Data Delivery	Sends GPS position data with Status, SDM and emergency calls or at regular intervals.
Emergency Call & Alert	This is the highest priority type of call. The network will attempt to connect this type of call as quickly as possible.
Pre-emptive Emergency	If all traffic channels are busy, this call service clears down an existing call and gives the emergency call priority.
Ambience Listening for remote monitoring	The ambience listening function allows to turn on the PTT from a remote location and transmit anything the microphone hears for a preprogrammed period.
Remote Kill	This function disables a lost or stolen radio over the air, eliminating security threats from undesired listeners.
Remote Stun/Revive	The remote stun function temporary locks out a radio until the revive command is received, or the user password is entered.
Call Back* (* Radio function)	Up to ten missed incoming calls can be stored in the radio to return the call later.
Call Queue	If a called party or channel is busy, the calling party is queued for the call. The call queue automatically connects the call when a channel or the called party becomes free.
Voice Scrambler/ Encryption* (* Radio function)	dPMR radios provide a 15-bit digital voice scrambler as standard. The IC-F3400DP/F5400DP series provide 4-key DES encryption as standard and can be upgraded 64-key DES and AES encryption.
ANI* (Automatic Number Indentification) (* Radio function)	dPMR radios show the alias ID number on the LCD while receiving a call, allowing the radio user to identify who is calling.
Late Entry to group call	If a group call is in progress, when a member of the group turns on the radio or comes into the radio coverage area, this function shows caller's name and allows the user to join the conversation.
Call Limit Timer	Fixed or dynamic call time programmable.

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